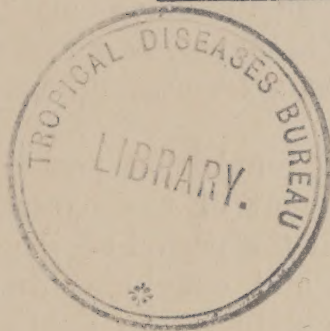


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SOME REMARKS ON THE SUCCESSFUL INOCULATION OF
LEISHMANIA TROPICA TO MAN.

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DURING the month of August of last year I was conducting experiments in Aleppo, Syria, on Oriental Sore and its transmission. Both there and previously in Bagdad I had allowed flies (*Stegomyia*, *Culex*, *Phlebotomus*) to feed upon sores, and afterwards upon my arm. As no positive result was obtained it was thought that I might possibly be immune to infection. Accordingly some material was obtained from an ulcerating sore by scraping and placed upon my arm, which was scarified with a needle. Some of the material was placed on another spot without scarification and allowed to dry, in order to determine if the leishmania might pass through uninjured skin. It may be



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stated at once that at the latter spot nothing resulted. On the scarified area, however, there quickly developed a suppurating focus of about 1 cm. in diameter and surrounded by much inflammation. There was discharge of pus, but eventually a scab formed and healing took place beneath this, leaving a slightly pigmented patch in which two small red spots could be detected. These subsequently disappeared.

Having returned to England, six and a half months later I became ill and suffered for about one week from fever up to 103° F., aching in the limbs, and some gastro-intestinal disturbance. I concluded that I was suffering from influenza, but in the course of the week I noticed that a small red papule had appeared at the site of the original inoculation. This increased in size and has grown slowly since then, while two smaller papules have appeared, both within the area covered by the original inoculation. The largest has now been growing for three months and is only about .25 cm. in diameter. Numerous leishmania have been found in these.

There arise from this experiment several interesting results.

1. *Leishmania tropica*, apparently, cannot pass through the uninjured skin.

2. The long incubation period of six and a half months means that the local development of the parasite is very slow. In a recent paper Patton has shown that the period of incubation after such inoculation may be only sixteen days, and concludes that it varies probably with the number of parasites inoculated. In another case inoculated by me in Bagdad the incubation was two months, which appears to be the more usual period.

3. At the time of appearance of the sore there was constitutional disturbance with fever and other symptoms. Was this the direct result of the development of the leishmania or did the disturbance of health aid the parasite in its multiplication? Several observers have recorded associated disturbance of health, and Marzinowsky, who inoculated himself, noticed similar symptoms at the time of appearance of his sore. On the other hand, Nicolle records the case of a man who was inoculated with *Leishmania tropica*. Nothing had resulted when seven months later he suffered from Undulant Fever. During the course of the illness, seven months after inoculation, a typical sore developed. It appeared as if the attack of Undulant Fever had lowered the man's resistance.

4. At the time of inoculation there was rather extensive suppuration, which might have been supposed sufficient to destroy the leishmania introduced, which were not, as a matter of fact, very numerous in the material used. The result demonstrates that a suppurating process does not necessarily prevent the development of the *Leishmania tropica* in the skin.

5. The ordinary discharge from an ulcerating sore, containing as it does large numbers of bacteria and other saprophytic organisms in addition to the leishmania, is capable of producing a sore if brought on to any open wound or abrasion of the skin. This must happen occasionally by accident in autoinoculations, and also probably through the agency of house-flies transferring material from a sore to some open wound.

